

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-31 (Cancelled)

32. (New) A method for reconstructing a three-dimensional image of an object from cone beam projection data, the method comprising the steps of:

acquiring the cone beam projection data, the cone beam projection data comprising a plurality of cone beam projection images;

determining a three-dimensional reconstruction region using a region of interest identified in at least one of the plurality of cone beam projection images, the three-dimensional reconstruction region being defined by a plurality of points; and

reconstructing the image at each of the plurality of points to form the three-dimensional image of the region of interest.

33. (New) The method of Claim 32, wherein the step of determining comprises the steps of:

identifying the region of interest within at least two of the plurality of projection images; and

projecting each identified region of interest through at least a portion of the object to identify the three-dimensional reconstruction region.

34. (New) The method of Claim 32 wherein the cone beam projection data is acquired by operating a source and a detector arrangement at a plurality of source positions along a scan path that encircles the region of interest of the object.

35. (New) The method of Claim 32, wherein a source and detector arrangement rotate about an axis of rotation and the projection images are

acquired at angular increments about the axis of rotation, the step of identifying the regions of interest comprises the steps of:

- selecting, from the plurality of projection images, a first projection image at a predetermined angle; and

- selecting, from the plurality of projection images, a second projection image at an angle ninety degrees beyond the predetermined angle.

36. (New) The method of Claim 32, wherein the step of determining comprises the steps of:

- identifying a region of interest within a plurality of projection images;

- projecting each identified region of interest to a source position corresponding with the associated projection image to define a three-dimensional projected cone; and

- sampling the intersection of the projected cones to determine a three-dimensional reconstruction region defined by a plurality of points.

37. (New) The method of Claim 36, wherein the step of identifying a region of interest comprises the step of identifying regions of interest with two cone projection images disposed at ninety degrees from each other.

38. (New) The method of Claim 32, wherein the step of determining comprises the steps of:

- identifying the region of interest within one of the plurality of projection images; and

- projecting the identified region of interest through at least a portion of the object region to define the three-dimensional reconstruction region.

39. (New) The method of Claim 32, wherein the step of determining comprises the steps of:

- identifying a region of interest within a first one of the plurality of projection images;

projecting the identified region of interest to a source position corresponding with the first one of the plurality of projection images to define a first three-dimensional projection cone;

projecting a second one of the plurality of projection images to a source position corresponding with the second one of the plurality of projection images to define a second three-dimensional projection cone; and

using the first and second projected cones to determine a three-dimensional reconstruction region defined by a plurality of points.

40. (New) A computer storage product having at least one computer storage medium having instructions stored therein causing one or more computers to perform the method of claim 32.